WHAT IS CLAIMED IS:

1. An exposure apparatus capable of selectively switching between a plurality of exposure methods, comprising:

setting means for setting exposure conditions for an exposure target;

a calculating means for calculating evaluation item values to determine the exposure method based on said set exposure conditions; and

determining means for selecting an exposure method that matches the exposure conditions for said exposure target based on the evaluation item values calculated by said calculating means.

2. The exposure apparatus according to claim 1, wherein said determining means selects from among said plurality of exposure methods taking into account at least two evaluation item values for every wafer, shot or lot.

3. The exposure apparatus according to claim 1, wherein said calculating means calculates said evaluation item values based on an evaluation item value calculation expression:

$$C(N) := F(SYL(N)) + G(SX(N), SY(N)) + H(\delta X(N), \delta Y(N)) + K(L) + P(M) + Q(S, SY(N))$$

where

SX: Position of the shot on the wafer in the non-scanning direction

SY: Position of the shot on the wafer in the scanning direction

δX: Image shift in the non-scanning direction in the shot

δY: Image shift in the scanning direction in the shot

L: Layout correlation coefficient

M: Lot printing method indication value

N: Shot number on one wafer

S: Synchronization accuracy target value

and the exposure conditions set by said setting means.

4. The exposure apparatus according to claim 1, wherein said calculating means, in the calculation of said evaluation item values, calculates evaluation item values according to the location of a shot based on the position of the shot in the non-scanning direction (SX) on a substrate and/or the position of the shot in the scanning direction (SY) on the substrate and data.

5. The exposure apparatus according to claim 1, wherein said calculating means, in the calculation of said evaluation item values, calculates evaluation item values related to a shape shift of a shot base pattern during multiple printing based on an image shift (δX)

in the non-scanning direction in the shot and/or image shift (δY) in the scanning direction in the shot.

6. The exposure apparatus according to claim 1, wherein said calculating means, in the calculation of said evaluation item values, evaluates whether or not to use previously measured correction data based on a shot layout correlation coefficient (L).

7. The exposure apparatus according to claim 1, wherein said calculating means, in the calculation of said evaluation item values, calculates evaluation item values taking into account at least any one of the shot, substrate and lot printing method indication value (M).

8. The exposure apparatus according to claim 1, wherein said calculating means, in the calculation of said evaluation item values, calculates evaluation item values to synchronize the drive stages taking into account a synchronization accuracy target value (S).

9. The exposure apparatus according to claim 1, wherein the plurality of exposure methods include three exposure methods of static exposure that performs exposure with the stage standing still, constant speed scanning exposure with the stage running at a constant speed while carrying out scanning exposure and

accelerated/decelerated scanning exposure with the stage running at an inconstant speed while carrying out scanning exposure, and

said determining means selects an exposure method that matches the exposure conditions from among the three exposure methods based on said evaluation item values.

10. An exposure apparatus capable of selectively switching between a plurality of exposure methods, comprising:

setting means for setting exposure conditions for an exposure target;

a calculating means for calculating evaluation item values to determine an exposure method based on the set exposure conditions; and

determining means for selecting an exposure method that matches the exposure conditions for said exposure target based on the evaluation item values calculated by said calculating means,

wherein said calculating means, in the calculation of said evaluation item values, calculates evaluation item values according to the location of a shot based on the position of the shot in the non-scanning direction on a substrate and/or the position of the shot in the scanning direction on the substrate and data, and

said determining means selects an exposure method that matches the location of said shot according to said calculated evaluation item values.

11. An exposure apparatus capable of selectively switching between a plurality of exposure methods, comprising:

setting means for setting exposure conditions for an exposure target;

a calculating means for calculating evaluation item values to determine an exposure method based on said set exposure conditions; and

determining means for selecting an exposure method that matches the exposure conditions for said exposure target based on the evaluation item values calculated by said calculating means,

wherein said calculating means, in the calculation of said evaluation item values, calculates evaluation item values related to a shape shift of a shot base pattern during multiple printing based on an image shift in the non-scanning direction in the shot and/or image shift in the scanning direction in the shot,

said determining means selects an exposure method that matches conditions of the shape shift of a shot base pattern according to said calculated evaluation item values during the multiple printing.

12. An exposure apparatus capable of selectively switching between a plurality of exposure methods, comprising:

setting means for setting exposure conditions for an exposure target;

a calculating means for calculating evaluation item values to determine an exposure method based on said set exposure conditions; and

determining means for selecting an exposure method that matches the exposure conditions for said exposure target based on the evaluation item values calculated by said calculating means,

wherein said calculating means, in the calculation of said evaluation item values, evaluates whether or not to use previously measured correction data based on a shot layout correlation coefficient, and

said determining means selects an exposure method according to the evaluation as to whether or not to use said evaluated previously measured correction data.

13. An exposure apparatus capable of selectively switching between a plurality of exposure methods, comprising:

setting means for setting exposure conditions for an exposure target;

a calculating means for calculating evaluation item values to determine an exposure method based on said set exposure conditions; and

determining means for selecting an exposure method that matches the exposure conditions for said exposure target based on the evaluation item values calculated by said calculating means,

wherein said calculating means, in the calculation of said evaluation item values, calculates evaluation item values taking into account at least any one of the shot, substrate or lot printing method indication value, and

said determining means selects an exposure method that matches the specified printing method based on said calculated evaluation item values.

14. An exposure apparatus capable of selectively switching between a plurality of exposure methods, comprising:

setting means for setting exposure conditions for an exposure target;

a calculating means for calculating evaluation item values to determine an exposure method based on said set exposure conditions; and

determining means for selecting an exposure method that matches the exposure conditions for said exposure

target based on the evaluation item values calculated by said calculating means,

wherein said calculating means, in the calculation of said evaluation item values, calculates evaluation item values to synchronize the drive stages taking into account a synchronization accuracy target value, and

said determining means selects an exposure method that matches the synchronization of the drive stage based on said calculated evaluation item values.

15. An exposure apparatus capable of selectively switching between a plurality of exposure methods, comprising:

setting means for setting exposure conditions for an exposure target;

a calculating means for calculating evaluation item values to determine an exposure method based on said set exposure conditions; and

determining means for selecting an exposure method that matches the exposure conditions for said exposure target based on the evaluation item values calculated by said calculating means,

wherein said determining means selects based on said calculated evaluation item values one appropriate exposure method from among three exposure methods of static exposure that performs exposure with the stage standing still, constant speed scanning exposure with

the stage running at a constant speed while carrying out scanning exposure and accelerated/decelerated scanning exposure with the stage running at an inconstant speed while carrying out scanning exposure.

16. The exposure apparatus according to claim 15, wherein said determining means selects from among at least two exposure methods of constant speed scanning exposure with the stage running at a constant speed while carrying out scanning exposure and accelerated/decelerated scanning exposure with the stage running at an inconstant speed while carrying out scanning exposure.

17. The exposure apparatus according to claim 15, wherein said determining means selects static exposure that performs exposure with the stage standing still.

18. The exposure apparatus according to claim 15, wherein said calculating means calculates the evaluation item values based on the exposure conditions for every lot, substrate and shot and said determining means switches between exposure methods according to said evaluation item values.

19. A semiconductor device manufacturing method, comprising the steps of:

installing a plurality of semiconductor manufacturing apparatuses for a plurality of processes including an exposure apparatus in factory; and

manufacturing semiconductor devices through a plurality of processes using said plurality of semiconductor manufacturing apparatuses,

wherein the exposure apparatus (claim 1) comprises:

setting means for setting exposure conditions for an exposure target;

a calculating means for calculating evaluation item values to determine an exposure method based on said set exposure conditions; and

determining means for selecting an exposure method that matches the exposure conditions for said exposure target based on the evaluation item values calculated by said calculating means.

20. The semiconductor device manufacturing method according to claim 19, further comprising the steps of:

connecting said plurality of semiconductor manufacturing apparatuses via a local area network;

connecting said local area network and an external network outside said factory;

acquiring information on said exposure apparatus from a database on said external network using said local area network and said external network; and

controlling said exposure apparatus based on said acquired information.

21. A semiconductor manufacturing factory, comprising:

a plurality of semiconductor manufacturing apparatuses including an exposure apparatus;

a local area network that connects said plurality of semiconductor manufacturing apparatuses; and

a gateway that connects said local area network and an external network outside said semiconductor manufacturing factory,

wherein said exposure apparatus (claim 1) comprises:

setting means for setting exposure conditions for an exposure target;

a calculating means for calculating evaluation item values to determine an exposure method based on said set exposure conditions; and

determining means for selecting an exposure method that matches the exposure conditions for said exposure target based on the evaluation item values calculated by said calculating means.

22. A maintenance method for an exposure apparatus, comprising the steps of:

preparing a database for storing information on the maintenance of said exposure apparatus on an

external network outside a factory in which the exposure apparatus is installed;

connecting said exposure apparatus to a local area network in said factory; and

performing maintenance of said exposure apparatus based on information stored in said database using said external network and said local area network,

wherein said exposure apparatus (claim 1) comprises:

setting means for setting exposure conditions for an exposure target;

a calculating means for calculating evaluation item values to determine an exposure method based on said set exposure conditions; and

determining means for selecting an exposure method that matches the exposure conditions for said exposure target based on the evaluation item values calculated by said calculating means.

23. The maintenance method for an exposure apparatus according to claim 22, comprising the steps of:

a vendor or user of said exposure apparatus providing a maintenance database connected to the external network outside the factory;

allowing access to said maintenance database from said semiconductor manufacturing factory via said external network; and

sending the maintenance information stored in said maintenance database to the semiconductor manufacturing factory via said external network.

24. The exposure apparatus according to claim 1, comprising:

an interface for connecting a network;

a computer for executing network software that performs data communication of the maintenance information of said exposure apparatus via said network; and

a display for displaying the maintenance information of said exposure apparatus communicated by the network software executed by said computer.

25. The exposure apparatus according to claim 24,

wherein said network software provides on said display a user interface for accessing the maintenance database provided by the vendor or user of said exposure apparatus connected to the external network of the factory in which said exposure apparatus is installed and allows information to be acquired from said database via said external network.

26. The exposure apparatus according to claim 1,

wherein when a manual mode exposure method is specified as said exposure conditions, said determining

means selects the specified exposure method independently of said evaluation item values, and

when an auto mode exposure method is specified as said exposure conditions, said determining means selects an exposure method that matches the exposure conditions according to said evaluation item values.

27. The exposure apparatus according to claim 1,

wherein when it is impossible to realize the exposure method due to the exposure conditions, said determining means registers a value exceeding threshold data for selecting said exposure method as an offset value in the calculated evaluation item values or registers a value for reducing this threshold as an offset value and determines a feasible exposure method.